

Sumitomo Electric Ind Co (EP1174885) does not teach or suggestion an electrically conductive coating containing simultaneously deposited, contiguous, ion-accelerated metal atoms and ion-accelerated diamond-like carbon atoms. The simultaneously deposited ion-accelerated metal atoms and diamond-like carbon atoms of applicants form a more homogeneous electrically conductive coating than does a conductive that has randomly distributed conductive parts within hard carbon, as taught by Sumitomo Electric Ind Co (EP1174885).

Paragraph 0076 of Sumitomo Electric Ind Co (EP1174885) teaches randomly distributed conductive parts 1hb within conductive hard carbon 1ha. The randomly distributed conductive parts are shown in Figures 10 and 11 of Sumitomo Electric Ind Co (EP1174885). The randomly distributed conductive parts are unevenly distributed within the hard carbon, as taught by Sumitomo Electric Ind Co (EP1174885).

By simultaneously ion-depositing, contiguous ion-accelerated metal atoms and ion-accelerated diamond-like carbon atoms, there is an even distribution of metal atoms and diamond like carbon atoms in the disclosed electrically conductive coating. Such a newly claimed electrically conductive coating is not obvious from Sumitomo Electric Ind Co (EP1174885).

Large conductive parts are shown as randomly separated in the hard carbon, in Sumitomo Electric Ind Co (EP1174885). The randomly distributed conductive parts, located in hard carbon of Sumitomo Electric Ind Co (EP1174885), do not suggest simultaneously deposited, contiguous, ion-accelerated metal atoms and ion-accelerated diamond-like carbon atoms.

Further, paragraph 0062 of Sumitomo Electric Ind Co (EP1174885) teaches that boron

be doped into a film 1f. A boron doped film is a much different than a conductive layer that contains simultaneously deposited, contiguous, ion-accelerated metal atoms and ion-accelerated diamond-like carbon atoms.

Sumitomo Electric Ind Co (EP1174885) teaches away from ion-accelerated metal atoms and ion-accelerated diamond like carbon atoms of a conductive coating.

Sumitomo Electric Ind Co (EP1174885) does not teach or suggest simultaneously ion-depositing ion-accelerated metal atoms and ion-accelerated diamond-like carbon atoms, to form a conductive coating. Sumitomo Electric Ind Co (EP1174885) does not cause a conductive coating of amended claim 2 to be obvious to one of ordinary skill in the relevant art.

Sumitomo Electric Ind Co (EP1174885) does not suggest a newly claimed conductive coating being on each of a plurality of slip-rings, the conductive coating containing simultaneously deposited, contiguous, ion-accelerated metal atoms and ion-accelerated diamond-like carbon atoms.

It is respectfully submitted that the present patent application is in condition for allowance and early allowance is respectfully requested.

Respectfully Submitted,



---

Darrell E. Hollis

Registration Number 26738  
(703) 601-9481

Please address all correspondence to:

Strategic Systems Programs  
ATTN: Darrell E. Hollis, Code SPLE-4  
2521 South Clark Street Suite 1000  
Arlington Virginia 22202-3930

2.(currently amended) A plurality of wear-resistant electrically conductive slip-rings slip-ring on a rotor, comprising:

- (a) a plurality of an electrically conductive slip-rings slip-ring on a rotor; and
- (b) an ion-accelerated, wear-resistant, electrically conductive coating on each the electrically conductive slip-ring slip-ring, each the ion-accelerated, wear-resistant, electrically conductive coating containing simultaneously ion deposited, contiguous, ion-accelerated metal atoms and ion-accelerated diamond-like carbon atoms.

3. (currently amended) Each ~~The~~ wear-resistant electrically conductive ~~slip ring~~ ~~slip-rings~~ of claim 2 wherein the simultaneously ion deposited, contiguous, ion-accelerated metal atoms are contiguous ion-accelerated copper atoms.

4. (currently amended) Wear resistant electrically conductive slip-rings

~~A wear resistant electrically slip ring of claim 2, each wear resistant electrically conductive slip-ring and further comprising an interfacial layer between the ion-accelerated, wear resistant, electrically conductive coating and the electrically conductive slip-ring slip ring.~~